

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 41 930.gi.sev	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/EP2004/004830	International filing date (day/month/year) 06.05.2004	Priority date (day/month/year) 07.05.2003
International Patent Classification (IPC) or national classification and IPC		
Applicant SMS DEMAG AKTIEGESELLSCHAFT		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
3.	This report is also accompanied by ANNEXES, comprising: <ul style="list-style-type: none"> a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>6</u> sheets, as follows: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4.	This report contains indications relating to the following items: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the report <input checked="" type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/004830

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 4-10 _____ as originally filed/furnished
- pages* 1-3, 3a _____ received by this Authority on 07.03.2005 by telefax
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. 5-12 _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-4 _____ received by this Authority on 07.03.2005 by telefax
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1/4-4/4 _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. II Priority

1. ☒ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
- ☒ copy of the earlier application whose priority has been claimed (Rule 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims <u>1-12</u>	YES
	Claims _____	NO
Inventive step (IS)	Claims <u>1-12</u>	YES
	Claims _____	NO
Industrial applicability (IA)	Claims <u>1-12</u>	YES
	Claims _____	NO

2. Citations and explanations (Rule 70.7)

1. This report refers to the following documents:

D1: DE 25 48 154 A (SACK GMBH MASCHF), 5 May 1977
(1977-05-05)

D2: EP-A-0 960 670 (KAWASAKI STEEL CO), 1 December 1999
(1999-12-01)

2. Novelty of claims 1 and 7

Document **D1** discloses a method and a device for cooling or quenching slabs and sheets, as defined in the preambles of **claims 1 and 7** respectively. Both claims differ from **D1** by virtue of their characterising parts, more particularly by virtue of the fact that the slabs and sheets are sprayed with cooling water on both sides.

Claims 1 and 7 are therefore novel (PCT Article 33(2)).

3. Inventive step in claims 1 and 7

Document **D1** is considered to be the prior art closest to the subject matter of **claims 1 and 7**. The aforementioned distinguishing features ensure a constant flow on both sides of the slab or sheet; this makes it possible to

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

achieve faster and more regular cooling rates during quenching, thereby avoiding rippling and unevenness.

The technical problem of interest arising from **D1** can thus be seen as that of how to improve the quality of the quenching process.

The solution to this problem involves arranging the slab vertically in the cooling bath and spraying it on both sides with cooling water. This solution is not known from either **D1** or **D2**. In **D1** the slab is simply immersed in a cooling bath, and in **D2** the slab is arranged horizontally in a cooling tank and sprayed with cooling water from below. Thus even a combination of the teachings of **D1** and **D2** does not suggest the idea of arranging the slab vertically and spraying it on both sides with cooling water.

Claims 1 and 7 are therefore inventive (PCT Article 33(3)).

4. **Claims 2 to 6** and **8 to 12** are dependent on **claims 1 and 7** respectively, and therefore also meet the PCT requirements in respect of novelty and inventive step.
5. There are no doubts regarding the industrial applicability of the subject matter **of claims 1 to 12** (PCT Article 33(4)).